

What is claimed is:

1. An HA network file server comprising:
 - two or more component servers having associated file systems, the file systems having no requirements as to media, implementation, or location;
 - means for keeping data content of the file systems consistent among the component servers;
 - means for sharing access to the file systems over a network;
 - means for redirecting network traffic between the component servers; and,
 - means for implementing file handle translation to allow one or more component servers to service transparently transactions of another component server.
2. An HA network file server comprising:
 - two or more component servers;
 - a local file system associated with each of the component servers, the local file system having no requirements as to media, implementation, or location; and
 - a translator for translating a file handle issued from one component server to the local file system of any component server to allow transactions associated with the issuing component server to be serviced transparently by any of the component servers.
3. The server of claim 2 wherein
 - each component server generates local file handles containing a component server ID and local file system information of the component server; and,
 - the component servers coordinate to generate a common file handle to be translated by the translator to allow any component server to identify a corresponding file in its local file system, the common file handle issued for use in client/server transactions.
4. The server of claim 2 wherein

- the translator maintains data structures that allow a component server to translate a file handle issued from another component server to its own file system information.
5. The server of claim 4 wherein the data structures associate a common file handle with local file handles generated by the local file systems of the component servers for a file, the common file handle used in client/server transactions.
 6. The server of claim 5 wherein the common file handle is a generic file handle.
 7. The server of claim 5 wherein the common file handle is the local file handle generated by the issuing component server.
 8. The server of claim 2 wherein a file handle is translated by the translator in response to a failure of the issuing component server.
 9. The server of claim 2 wherein a file handle is translated in response to increased workload to thereby effect a re-distribution of the workload among the component servers.

10. A method of providing high availability and fault tolerance to a server system having two or more component servers with associated file systems, the file systems having no requirements as to media, implementation, or location, the method comprising:
- maintaining consistent data content among the file systems associated with the component servers;
 - sharing access to the file systems over a network;
 - redirecting network traffic between the component servers; and,
 - implementing file handle translation to allow one or more component servers to service transparently the transactions of a first component server.
11. The method of claim 10 wherein implementing file handle translation comprises:
- maintaining a data structure to allow any component server to associate a file handle issued by any other component server with the correct file in its own file system.
12. The method of claim 11 wherein implementing file handle translation further comprises:
- using the data structure to translate a file handle issued by a first component server to a corresponding file in the file system of a second component server.
13. The method of claim 12 wherein using the data structure comprises:
- associating a generic file handle with local file handles from the file systems of the component servers, the generic file handle issued for use in the associated transactions.

14. The method of claim 12 wherein using the data structure comprises:
- associating the local file handles from the file systems of the component servers for a file, the local file handle of the first component server issued for use in associated client/server transactions.
15. A method of providing high availability and fault tolerance to a network server system having two or more component servers with associated file systems, the file systems having no requirements as to media, implementation, or location, the method comprising:
- issuing a file handle from a first component server;
 - translating the file handle to the file system(s) of one or more other component servers to allow the other component server(s) to service transparently the associated transactions.
16. The method of claim 15 further comprising:
- maintaining a data structure for translating the file handle to the file systems of the component servers.
17. The method of claim 15 wherein issuing a file handle from a first component server comprises:
- generating a local file handle for a file maintained in the file system of a first component server;
 - coordinating with remaining component servers to generate a common file handle that may be used by any of the component servers to identify the file in the associated file system of the component server;
 - generating the common file handle; and,
 - returning the common file handle for use in associated transactions.
18. The method of claim 17 wherein generating the common file handle comprises one of:

- associating a generic file handle with local file handles from the file systems of the component servers, the generic file handle returned for use in the associated transactions; or
 - associating the local file handles from the file systems of the component servers for a file, the local file handle of the first component server returned for use in the associated transactions.
19. The method of claim 18 wherein the first component server may be any of the component servers.
20. The method of claim 19 further comprising:
- translating the file handle to the file system of one or more other component servers in response to increased workload to allow the other component servers to service the associated transactions, thereby effecting transparent workload re-distribution among the component servers.
21. The method of claim 15 wherein translating the file handle occurs in response to the failure of the first component server.
22. The method of claim 12 wherein the first component server may be any component server.
23. The method of claim 10 wherein implementing file handle translation occurs in response to increased workload to allow the other component servers to service the associated transactions, thereby effecting transparent workload re-distribution among the component servers.
24. The method of claim 10 wherein implementing file handle translation occurs in response to the failure of the first component server, thereby effecting transparent file handle failover.